CHAPTER SIX

EUROPEAN EXPANSION AND THE NEW ORDER OF KNOWLEDGE

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The Renaissance cannot be reduced merely to the philological, literary, artistic, and scientific innovations that took place over the geographical axis Italy–France–Germany–Flanders–the Low Countries–England from the fourteenth to the sixteenth centuries. This traditional approach not only excludes much of the continent (Iberia, Scandinavia, central and eastern Europe, and the Ottoman Empire) but also the decisive role of overseas expansion towards other continents. Many authors, namely Jean Delumeau, Anthony Grafton, and Peter Burke, have pointed out the importance of the expansion for the European Renaissance. But the dominant approach has not changed: most historians (not to mention the cultivated public) continue to view the impact of the expansion as marginal, though at times it is seen as significant in the development of such disciplines as astronomy, geography, and cartography.

This chapter, by contrast, argues that the European expansion played a central role, affecting crucial areas of the new order of knowledge. First, I will briefly evaluate the real dimensions of the phenomenon, with its diversified economic, political, and social impact in other continents. Then, I will reconstitute the different conditions for cultural exchange outside Europe. Finally, I will focus on the impact of the overseas experience and its influence on the intellectual development of Europe. We will consider five areas where the effects of that experience were most visible: geography, natural history, linguistics, literature, and political thought.

EXPANSION

The exploration of the west coast of Africa by the Portuguese started immediately after the conquest of Ceuta in 1415. Aiming to bypass the caravan trade of gold from Timbuktu and the slave trade from sub-Saharan Africa to the Maghreb, the Portuguese discovered and populated the archipelagos of Madeira, the Azores, Cape Verde, and São Tomé; created trade posts and forts in Mauritania, the Gulf of Guinea, and Angola; and established political relations with the Akan states and the Kingdom of Congo – in this case the royal family was Christianized. In the process they improved the caravel, developed nautical instruments (like the astrolabe), and

mapped the sky of the southern hemisphere; they mastered the system of winds and currents of the Atlantic Ocean, and eventually sailed around the Cape of Good Hope into the Indian Ocean. These achievements opened the way for the voyages of Christopher Columbus (1492) and Vasco da Gama (1497).

The next phase of the European expansion developed much faster and involved not merely the establishment of trading posts and forts on islands, or along the coasts of newly discovered territories, but actual colonization and territorial dominion. The establishment of the Spaniards in the main Caribbean Islands was followed by the conquest of Mexico by Cortés (1519–21) and of Peru by Pizarro (1531–33). Successive voyages of exploration and settlement created a Spanish network that spread from the former territorial domains of the Nahua and Tahuantinsuyo states to Central, South, and North America. Cortés launched the exploration of the Pacific Ocean immediately after the conquest of Mexico, but it took almost 40 years to master the system of winds and currents necessary to allow the round trip. It was only after the voyage of Urdaneta (1564–65) and the foundation of Manila (1571) that a regular connection was established between Mexico and the Philippines. Throughout the sixteenth century 250,000 people emigrated from Spain to America, while the native population suffered a huge decline provoked by war, the transfer of populations, and European diseases: Mexico declined from 15 million people before the conquest to 1.3 million people in 1600, Peru from 9 million people to 0.8 million during approximately the same period. A mixed population developed rapidly because Spanish women represented less than 15 percent of the total emigration throughout the sixteenth century. The slave trade from Africa to Spanish America involved 75,000 people during the same period. Several thousand Asian people, who arrived from the 1570s on, complete the picture of the demographic and ethnic impact of the Spanish conquest (Sánchez-Albornoz 1994).

The cultural impact of conquest was immense. The introduction of Christianity, and European culture more generally (as it was expressed, for example, in the visual arts and in literature), drove the indigenous peoples of the New World to learn new ways of thinking and new practices, with the result that their own traditional systems of beliefs, along with indigenous arts and craft traditions, were either transformed or destroyed. The codification of the native languages by the missionaries, and the teaching of Castilian and even Latin in the new schools, diffused writing skills, reinforcing what Serge Gruzinski (1988) has called the "colonisation of the imagery." The capitals of the vice-royalties, Mexico and Lima, reached 70,000 and 20,000 people respectively by 1600. These cities became homes to numerous institutions, including the universities, created in 1551. Colleges of the religious orders were established in the main cities, addressed to Spaniards, Creoles, and Indians from the local elites, not to mention the schools for young Creoles, Indians, and mestizos set up through the initiative of religious orders and civil authorities. The existence of printers and publishers facilitated the diffusion of European cultural models, even as censors sought to control the expression of local intellectual creativity.

The Portuguese expansion in Asia also proceeded at a rapid pace. The Portuguese reached China in 1513 and Japan in 1543, although, in comparison with the Spanish in America, the Portuguese conquests in Asia were much more limited due to the complexity of Asian powers, the presence of Turkish armies, and the widespread use

of artillery. The conquest of Hormuz (1507–15), Goa (1510), and Malacca (1511) defined the backbone of a maritime empire that could control part of the inter-regional trade from the Persian Gulf to Southeast Asia. By the end of the sixteenth century the Portuguese dominated some of the main ports on the eastern coast of Africa, the Gulf, and the west coast of India, and the passage from the Indian to the Pacific Ocean, not to mention Macao near Canton (China) and coastal Ceylon. There were strong Portuguese communities outside the Estado da Índia in the Bay of Bengal, in Southeast Asia, and in Japan. But the Portuguese expansion also reached other continents: the occupation of the Brazilian coast, begun slowly in the first decades of the sixteenth century, gained momentum with the establishment of a general government in 1549. Throughout the second half of the sixteenth century Brazil attracted most of the Portuguese emigrants, aware of the high mortality in the carreira da Índia and of the new opportunities opened by the development of sugar-cane plantations. The Portuguese also migrated to Spanish America, mainly after the unification of Iberian crowns in 1580. More than 200,000 people emigrated from Portugal during the sixteenth century, but the geography of settlement changed through time. North Africa could count 15,000 Portuguese before defeat and retreat from 1541 to 1550; in 1600, the Atlantic Islands contained 95,000 Portuguese, Brazil 30,000, the west coast of Africa less than 1,000, and the Estado da Índia 10,000. The mixed population in Portuguese Asia was comparatively higher than in Spanish America, due to much lower percentages of women in the carreira da Índia. In 1600 the number of Portuguese in Goa was not much more than 2,500 in a total population of 75,000. African slaves transported to Brazil reached 50,000 throughout the sixteenth century. Slaves had already been crucial for the growth of the sugar plantation system in Madeira (later replicated in São Tomé) during the last decades of the fifteenth century.

In Asia, the influence of the Portuguese was much greater than the number of settlers alone suggests. In Japan, by the end of the sixteenth century, missionaries claimed to have converted some 300,000 people, a fabulous record that had no parallel in other regions, even those under Portuguese political dominion. Ceylon, Goa, and the Fishery Coast (southwest of India) were the clearest cases of evangelizing success. The presence of missionaries at the courts of the Ethiopian, Mogul, Persian, and Chinese rulers meant a regular cultural exchange at the top level. Brazil had a social environment much more similar to the eastern cost of North America than to Spanish America, because natives were nomadic or semi-nomadic populations, without a structured urban political society. The integration of native populations was generally the result of violent expeditions, which provoked huge migrations. Under those conditions, cultural exchange was mostly limited to tools, language, and gastronomy. Many Portuguese spoke Tupi and they integrated the products of the land in their culinary habits. They transferred manioc to Africa in the same way the Spaniards transferred tomatoes and maize to Europe. In the Portuguese territories overseas there were schools and colleges, mostly created by religious orders, but no universities (a distinct contrast with Spanish America). In Goa, Macao, and Nagasaki there were also printers, but in Brazil they were forbidden by the king.

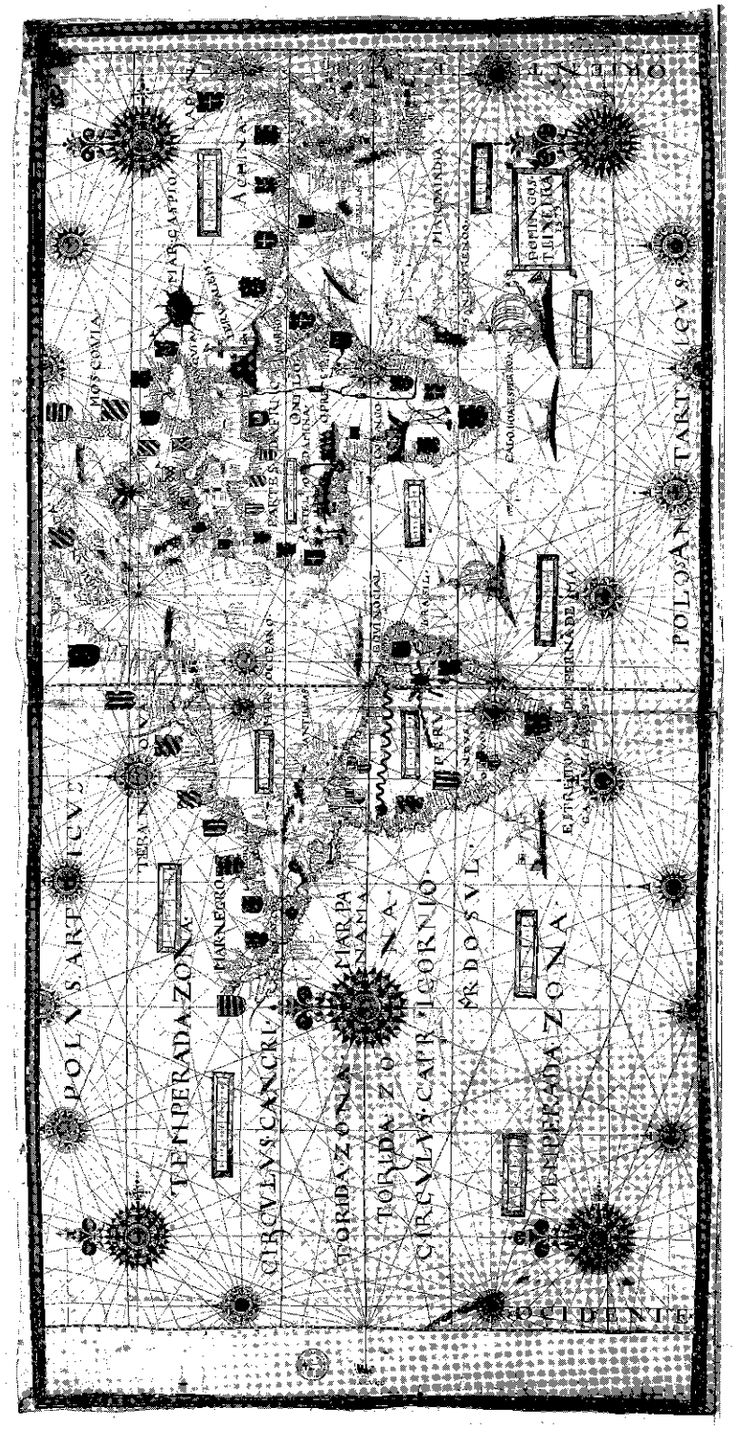

Figure 6.1 Domingos Teixeira. *Planisphere* (1573). Bibliothèque nationale de France.

EXCHANGE

A revolution in military architecture began in Europe after the Italian wars exposed the fragility of traditional vertical fortifications. Lower, inclined walls, prepared to receive successive canon discharges and protected by bastions with possibilities of cross-fire, defining a polygonal configuration with flat surfaces and sharp angles, were the main features of the new fortifications. In 1541 in Mazagan (now El-Jadida, Morocco) and in 1546 in Diu (India), this new style was deployed for the first time outside Europe. In Mazagan, the huge dimensions of the fort (the main walls were 384, 296, 342, and 240 meters long) allowed the architects/engineers (Benedetto da Ravenna, Miguel de Arruda, and João de Castilho) to improve the "bent walls" between the bastions. The new trend had not yet been reflected in a major printed text, despite the rapid circulation of drawings and news about the latest developments, such as the Fortezza da Basso in Florence, built in 1532 by Antonio da Sangallo. Benedetto da Ravenna, an engineer and specialist in artillery who worked extensively on military architecture for Charles V, was not only aware of the new trend in Italy but also had personal experience of the advances in military architecture in the eastern Mediterranean, where in 1522 in Rhodes he fought the Turks. But Mazagan also represented the fusion between the fort and the city, built inside the walls, designed as an ideal geometric city, and structured around a trapezoidal central square. In 1546, in Diu, immediately after a devastating siege that left almost all the fortifications in ruins, the humanist governor Dom João de Castro ordered the building of a new fort directed by Francisco Pires, chief engineer of the Estado da Índia. The same lessons of Renaissance military architecture can be seen in the huge polygonal bastioned fort, adapted to the topography of the rocky coast. These are the two most significant examples of Portuguese military architecture overseas, but similar examples can be found in hundreds of forts built on the islands and coasts of Africa, Asia, and America (Moreira). In a certain way, the Portuguese Empire can be defined as an empire of fortifications.

The geometric city, which was systematically built in America by the Spaniards after the reconstruction of Tenochtitlán (Mexico), is one of the most important cultural Renaissance features in the European expansion. Richard Kagan has rightly defined Spanish America as an empire of towns. By 1580, 240 municipalities had been founded, which meant the creation of a town with jurisdiction over a territory comprising hamlets and villages inhabited by natives. Towns were laid out according to a grid or checkerboard plan, with symmetric straight streets structured by a central square, where the most important buildings were located – the town hall, the prison, the main church, and the *picota* or pillory (a column for the public punishment and display of criminals, symbol of the royal justice). The impact of this configuration of the *urbs* (the architectural city) in the new *civitas* (the community of the residents) is obvious: the main symbols of *policía* (police, security, regulation of the common good) were central to all neighborhoods, defining the Spanish order. The square also concentrated the main market and the main religious and civic ceremonies, reinforcing the role of the urban setting for political and cultural values. We have to keep in mind that the Spanish conquest was followed by huge transfers of native inhabitants to the new towns, because the authorities were persuaded that

resettlement was the best strategy to ensure long-lasting conversion and permanent political control. This policy explains the Spaniards' frantic activity in America, building and rebuilding towns – Alain Musset has called these "nomadic cities" – as the Spaniards searched for better strategic and environmental settings. The result is that while in Europe the Renaissance model(s) of the city had few opportunities to be built from scratch (Sabbioneta is one of the few examples), in America we have hundreds of examples, due to the conditions of conquest and the need felt by the European imperial power to impose political control through urban planning.

Regular two-story houses with multiple courtyards at the back, such as those represented in depictions of Mexico City, could create a pattern of order and harmony, which must be related to the symbolic power of the main civil and religious buildings. Size and style are the significant aspects of these buildings. The hospital of San Nicolas (built 1502–52), the *alcázar* (the palace of Diego Columbus, built 1515–23), and the cathedral of Santo Domingo (built 1521–40) had a major impact in an area where the native population was decimated and did not have buildings of the same size and material. The projection of European styles in these main buildings reinforced the assertion of authority, technical skill, and knowledge. In these first important colonial buildings we can see the richness of the Plateresque style, blending Gothic, Renaissance, and *Mudéjar* elements. While the structure, the arches, and the vaults of the cathedral are mainly Gothic, the vocabulary of the façade and the principal portal are Renaissance and include the decorative elements that justified the designation Plateresque (a metaphor referring to ornate silverwork). The hospital of San Nicolas reveals the same transition from Gothic to Renaissance, combining a Gothic structure with a Renaissance portal and courtyard. The *alcázar* of Santo Domingo, a rectangular, two-story, long H-shaped building, integrates the medieval military style of the Iberian *reconquista* and the elegant Italian Renaissance double loggia, placed at the center of both façades. This *alcázar*, already inspired by the villa Farnesina in Rome, became a model for Cortés's palace in Cuernavaca (built 1523–28), the manor house of the huge domain he had reserved for himself on the best lands in the region. In this case the medieval military style was emphasized, both in size and decorative elements, reducing the expression of the double loggia at the centre of the building.

The civil and religious buildings in New Spain and Peru also reveal a scale larger than was usual in Iberia, because the Spaniards had to come to terms with the huge ceremonial buildings of the Nahuas and Incas. In Mexico City, the hospital of Concepción de Maria (begun in 1524, attributed to Prada Vazquez and Diego Dias of Lisbon, who probably contributed to the palace of Cortés in Cuernavaca) features a clear Renaissance style, which shows a rapid transition from the first hospital in Santo Domingo. The viceregal palace of Mexico, built by Cortés on the site of Moctezuma's palace and purchased in 1562 by the crown, was subsequently transformed by Claudio de Arciniega and other architects. Its 300-meter-long façade underlines the imposing horizontal size of the two-story building (a third floor was added in 1926), engaging in a curious dialogue with the massive vertical cathedral built on an adjacent side of the square (110 [x] 55 meters), the towers of which, completed quite late, measure 67 meters high. Influenced by the *alcázar* of Toledo, begun in 1537 by Alonso de Covarrúbias, the palace features military-style rusticated

walls, corner towers, plain windows, and spacious rectangular courtyards, following models of the Italian Renaissance. The austerity of the façade contrasts with the densely decorated doorway at the center, crowned by the royal coat of arms. Lima's viceregal palace, completed in 1603 (now destroyed), was even more imposing than the Mexican one, with balconies decorating half of the first floor. The central doorway had a similar Renaissance stone portal framed by pilasters and columns, supporting a pediment with the royal coat of arms. The façade and the doorway were also an open quotation of Renaissance classicism chosen by Juan de Herrera (and Philip II) for the Escorial (built 1563–82).

In New Spain, the rapid integration of Renaissance elements in architecture – mainly in the façades, portals, and cloisters of religious and civil buildings, but also in the single nave of the Augustinian churches – has to be related to the success of the Renaissance style in painting. The convent of Actopan, one of the most impressive edifices of the Augustinian order anywhere, is probably the best example. In this convent, founded in 1546, we can find 300,000 square meters of refined Renaissance frescoes painted from the 1540s to the 1570s, with the representation of the Old and New Testament, the Augustinian Saints, and the main scholars, bishops, archbishops, and cardinals of the order. We have to keep in mind that this was an establishment of superior education for Augustinian friars, although other convents of the order, like the one founded at Atotonilco, could also boast impressive sets of frescoes. But the interesting fact is that the painters were Indians, as in the case with other Augustinian, Franciscan, and Dominican convents in Mexico. It required skilful artisans to master the painting techniques of the Renaissance – not only the teachings of perspective and composition but also the totally new manner, for the native artists, of representing nature and the human body, not to mention European decorative motives.

In the Estado da Índia, Renaissance urban planning had an impact on the main cities of Goa, Colombo, Daman, and Bassein, through the introduction of geometric streets structured by main squares, two-story dwellings, and flat and continuous façades to create uniform blocks of houses. Even if the gridiron was not as strict as in Spanish America, the Portuguese city layout disrupted the traditional Hindu and Muslim urban features. Urban architectural constraints were not extended to rural areas, where palaces and leisure houses could boast balconies, terraces, and verandas more adapted to the conditions of the warm and humid climate. High pyramidal roofs indicate the adaptation to local Islamic influence, contributing also to the ventilation of the houses. The most significant civil and religious buildings reveal larger-scale plans than in Portugal, a tendency shared by the Spanish architecture in America. Manueline style, a specific blend of gothic structures, *Mudejár*, and Renaissance decorative elements, defined the first period of construction in the Estado da Índia, although we can follow the transition to Renaissance influence in the sequence of churches built in Goa between 1517 (São Francisco) and 1557 (Nossa Senhora do Monte). The construction of the hospital of Goa, the palace of the viceroys, and the shipyard (with an urban arrangement of the seafront that included warehouses and dockyards) represents the achievement of the Renaissance city. Helder Carita (1999) has already interpreted the tower houses of the captains as symbolic expressions of the Portuguese identification with the Kshatriya warrior

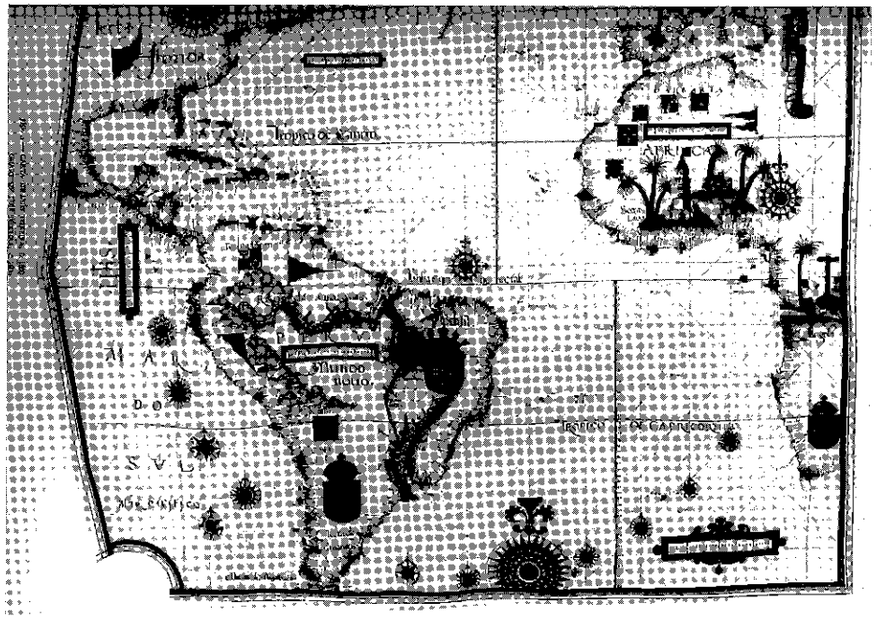

Figure 6.2 Luis Teixeira. *The Atlantic Chart*, *c.* 1600. Biblioteca Nazionale, Firenze.

caste, but they were not so distant in design from the first military palaces in Spanish America.

The Spanish conquest imposed a new framework of artistic styles, not leaving much space for native creativity. However, local patterns of representing nature may be identified in the façades of Augustinian churches in Cuitzeo and Yuriria in Mexico. More interesting is the fresco representing the Annunciation at the Franciscan church of Cuauhtinchan. The image follows the medieval canon, but it is placed between an eagle and a jaguar both of which watch the scene. We cannot dismiss the relationship of these animals with the two major and complementary divinities of the Nahua pantheon, Huitzilopochtli and Tezcatlipoca, representing light and darkness. If we have here a quite straightforward juxtaposition of two different worlds, in the extraordinary frescoes of the Augustinian church of Ixmiquilpan we have a much more complex cultural exchange. The fight of the Centaurs has already been interpreted by Gruzinski (1994) as a quotation from the *Metamorphoses* of Ovid, with Indian warriors dressed in pre-Hispanic fashion, masked as jaguars and eagles, using traditional weapons. The traditional representation of the human body, the absence of perspective, and the grotesque decoration indicate the persistence of the old manner, while the movement of the warriors, the expressions on their faces, and the European decorative elements show the acquisition of Renaissance patterns.

Nonetheless, in Spanish America hybridism was marginal in both architecture and painting – excluded from canvases and altarpieces, it appeared sometimes in frescoes inside churches, as we have seen. Native artistic traditions were mainly

expressed through the magnificent illuminated codices produced after the conquest or the regional maps of the *relaciones topográficas* (depicted around 1580), where we find symbolic and codified ways of representing the human body, the genealogy of the old rulers, the landscape, and the towns (Mundy 1996). In Portuguese India hybridism was comparatively more visible, not only in architecture, with the inscription of native forms in façades of churches, verandas, and roofs of houses, but also in painting, mainly through facial expressions, positions of the body, and ornamental elements. But it was in the field of decorative arts that cultural exchange became more expressive, contributing to the enrichment of Renaissance forms not only in India but also in western Africa, Ceylon, Japan, and China.

From 1480 to 1530 local artisans created delicate ivory spoons in Sierra Leone and Benin for the Portuguese (and European) market. If the stylish forms of the spoon are already hybrid, the extraordinary ornamental elements (fishes, birds, antelopes) are African. The oliphants (hunting horns sculpted on ivory) were considered even more precious objects and were displayed in Kunstkammern or cabinets of curiosity throughout Europe. They were ornamented with an exuberant representation of flora and fauna, men (dressed as Europeans with fire guns), and geometric elements (reflecting the patterns of African works of raffia). Some of these oliphants included inscriptions in Latin and depicted typically European hunting scenes, with deer, wild boars, or bears chased by dogs, meaning that the African artists were inspired by European images, several of them already identified. The third type of these Afro-Portuguese ivories is the host-box, where scenes of the life of Christ or the Virgin Mary were depicted according to the Western canon. The fourth type is the salt cellar, perhaps the most African of these forms because it is closer to the traditional local forms of juxtaposed half-boxes. Again we have geometric forms, but the creative element is the representation of the Portuguese, with their long noses, hats, European dress, and fire guns (Bassani and Fagg 1988).

In Asia the typical production of decorative arts for the European market can be observed through Chinese porcelain, which followed the traditional forms complemented by inscriptions, monograms, emblems, and coats of arms. The region of Gujarat, in India, with a powerful tradition of textiles and jewelry, also presented a vast range of objects addressed to the European market, adapting their traditional forms to the new requests from the Portuguese merchants. Many of the items collected for Kunstkammern, such as the magnificent chessboards covered by turtle shell and mother-of-pearl with extraordinary representations of nature and human scenes at the back, or the vessels, basins, plates, bottles, and jars completely covered by mother-of-pearl, did not present significant changes in form. The portable oratories, reliquary boxes, trunks, arks, coffers, chests of drawers, desks, boxes, and table lids made out of exotic woods, mother-of-pearl, ivory, turtle, rock crystal, and lacquer, ornamented by an ingenious jewelry work of silver and gold, already included European religious or lay scenes. The designs of salt cellars produced in different regions of Asia engaged in a dialogue with the European forms. Sri Lanka was a competitive producer for the European market, due to its refined jewelry and traditional ivory work, its ability to create sophisticated coffers, and its sensibility for delicate small objects, like spoons, forks, and fans. Some of the most sought-after exotic objects, like bezoars, shells, gourds, coconuts, or rhinoceros horns, were mounted

either in India or in Europe with complicated jewelry work. The jewelers of Goa played an important role in this process, not only as mediators, purchasing all over Asia the most significant objects, but also as creators of new forms, having specialized in the work of filigree (Trnek and Silva 2001).

Most of these objects defined a lifestyle: they belonged to what Eiko Ikegami called the arts of civility. The impressive amount and variety of tableware indicates that the Portuguese in Asia ordered extensively for the European market, but they also invested in receiving and entertaining their compatriots and native counterparts (artisans, merchants, bankers, ambassadors, political agents). The wide use of tableware by the Portuguese in Asia indicates the central role of gastronomy in the arts of civility, which were related to other forms of art, like dance and music, and which contributed to create an aesthetic environment, simultaneously private and public, that opened an exchange between the Portuguese and the local forms of cultural expression. It is interesting to note how selected silver tableware traveled to India to embellish the receptions of governors, captains, bishops, judges, inquisitors, and principals of religious orders, but also how Chinese porcelain services were exported in impressive quantities to Europe, becoming fashionable among the elites throughout the sixteenth century – we know that the Portuguese introduced porcelain in Italy as a gift to popes and cardinals, specifically during the Council of Trent. In Europe the introduction of porcelain followed the diffusion of table manners and the increasingly widespread use of forks.

FEEDBACK

From 1505 to 1508, Duarte Pacheco Pereira wrote the *Esmeraldo de situ orbis*, which is simultaneously a chronicle of Portuguese discoveries, an account of his travels, and a repository of cosmographical, geographical, and nautical observations. Pacheco Pereira (*c.* 1460–1533) – a man of action, navigator, and explorer of the Atlantic for the Portuguese kings and captain in Africa and in India, where he fought and won crucial battles – was celebrated by Camões in the *Lusiads* as the Lusitanian Achilles. But he was also a man of culture, with some knowledge of classic literature, read in translation. Experience was a key notion in his book, considered as the only criterion of truth, removing illusions and doubts. Pereira explicitly criticized the superstitions and fables of ancient cosmographers (Pliny, Ptolemy, Pomponius Mela, John Sacrobosco), who had assumed that the land south of the equinoctial circle was uninhabitable and who had suggested similarities of climate, land, and people under the same latitude. Pereira indicated the different complexion and phenotype features of Guinean and Brazilian peoples living under the same parallel. He boasted that the ancients only knew the world from Spain to the Arabian Gulf, while the Portuguese explored most parts of the world.

The notion of experience, as the criterion of truth, was invented and integrated into Renaissance epistemologies quite late (Carvalho 1983). Pacheco Pereira must be placed next to Leonardo da Vinci; they were preceded, in the fifteenth century, by Alphonse, king of Aragon; Duarte, king of Portugal; and the Portuguese chronicler Zurara. But fifteenth-century references to "experience as mother of all

things" were scarce and too general, lacking the precision with which Pacheco Pereira (and da Vinci) developed this concept. Pacheco portrayed the connection between experience and knowledge as a kind of rape: "the best part of knowledge of so many regions and provinces came to belong to us, who took their virginity." It is a curious quotation for post-colonial studies, relating European observation (another word introduced quite late) with gender, possession, use, and knowledge. Pereira's radical text, however, remained in manuscript until the nineteenth century, a fact that likely restricted the possibilities of the direct diffusion of his ideas.

In 1535, one generation later, Gonzalo Fernández de Oviedo published the first part of his *História General y Natural de las Indias*. The author did not hesitate to criticize the fables of ancient writers (Ptolemy, Pliny, and Avicenna were quoted), and claimed that he was writing according to his personal observation and experience, as an eyewitness of most of what he was writing about. Oviedo's personal life as courtier, navigator, explorer, and royal high officer in Spanish America is obvious in his writings (the abridged and the extended version of the history of Indies, a chivalry novel, compilations of battles, genealogies). But Oviedo was extremely careful to place himself under the protection of the Catholic Church, never contradicting sacred history and geography. This was in contrast to the autonomous field of profane geography, created by humanists like André Thevet, who criticized not only the fables of the ancient geographers integrated by the scholastic order of knowledge but also the fables of the Old Testament, like Jonah's whale, Samson's lion, and Ezekiel's pygmies (Lestringant 1991). The primacy of experience over authorities was constantly heralded by Thevet in his books – *Cosmographie du Levant* (1554), *Les singularitez de la France Antarctique* (1557), *Cosmographie universelle* (1575), *Vrais portraits et vies des hommes illustres* (1584) – to the point that he boasted of imaginary voyages besides the real ones he made to Jerusalem and Constantinople (1549–52) and to Brazil (1555–56). He understood the notion of experience as experiment and proof (like Montaigne), asserting the importance of practical knowledge to redefine the theory of the world. Even though he decided to exhibit an erudition that he did not possess and insisted on a cosmographic model that had exhausted its possibilities in the 1550s, Thevet played an important role not only as geographer but also as ethnographer, since he produced accurate descriptions of Indian rituals and mythologies. He also "invented" the Indian monarchy, promoting and consecrating temporary war chiefs as "illustrious men," placed in his gallery of the main emperors, kings, and captains of all times, a theoretical political device necessary for colonial projects.

The value of experience (and experiment in sciences) was a fundamental notion that shaped a new order of knowledge, based on quantitative calculation and qualitative comparison. It must also be related to other innovations in Europe that defined this epistemic revolution. The replacement of roman by arabic numbers, already in progress throughout the fourteenth and fifteenth centuries, meant the liberation of new capacities for mental calculation. It was crucial for the development of accounting and theoretical mathematics, but we have to acknowledge as well the impact of the reintroduction of Euclidean geometry in the thirteenth century, opening new possibilities for the abstract representation of space. Astronomy benefited from these developments, as well as cartography.

Navigation in open sea required the use of nautical instruments, like the compass and the astrolabe, not to mention the mapping of the sky in the southern hemisphere to calculate distances and to map the coastlines, harbors, islands, canals, and reefs. We also have to consider the impact of maritime cartography on terrestrial cartography based on triangular observation of distances, applied in Portugal and Spain from the 1530s to the 1560s.

But Renaissance mental revolution cannot be defined only by these quantitative new trends; it was also defined by qualitative comparison. The accumulation of information about other people and other continents – their economies, trading customs, habits, religions, political systems, flora and fauna – introduced a completely different scale of reasoning, allowing systematic comparison to develop in different areas of knowledge.

The impact of European expansion in geography is evident, for example, in the contrast between the *Historia rerum ubique gestarum*, written by Aeneas Silvio Piccolomini (1405–64) when he was already Pope Pius II and printed in Venice in 1477, and the *Delle relationi universali*, written by Giovanni Botero and printed (the complete version) in Vicenza in 1595. Piccolomini based his description of the peoples of the world on Ptolemy, Strabo, Pliny, Curtius, and Pomponius Mela, with updated references – namely, from Marco Polo or Odorico da Pordenone, concerning India and Cathay (China). The ancient geographers (but also Pierre d'Ailly) inspired Piccolomini's introduction on cosmography, the three parts of the world (Asia, Africa, and Europe), and their boundaries. Piccolomini's published text actually dealt only with Asia and Europe, since he never wrote the promised section on Africa. In it, moreover, the author preserved the older visions of the world divided into inhabited and uninhabited regions, of continents surrounded by water, and of the oceans, in turn, surrounded by land without possibilities of navigation to the northern or southern poles. Even if the author was conscious of the limits of these references – he raised the issue of the Baltic Sea, never described before – he was totally dependent on ancient knowledge, revealed by the names of people and places he reproduced without questioning their evolution over time and the constant migration of populations. He described a world lost a long time before, into which he tried to introduce new political and religious information. Anachronism was limited by the fact that Piccolomini focused a good part of his description of Asia on the regions controlled by the Turks, a topographic obsession that would have a long life in Renaissance Europe. The description of Europe was less strange, since he had traveled extensively, knew many regions personally, and incorporated new knowledge, although the British Islands and Hispania were placed in a quite marginal position. What is striking is that the book was obviously not an enterprise of leisure or a work written in pursuit of pure knowledge, but rather a religious and political initiative that justified the investment of time by a pope who died while organizing a crusade against the Turks.

The *Universal Relations*, written by Botero more than a century later, reveals a dramatic change. The names of peoples and countries can be recognized without much effort by a reader of the twenty-first century with good geographical knowledge; the descriptions of territories and boundaries were quite accurate, especially for Europe, but also for most of Asia and a good portion of America – it was the

interior of Africa that remained almost totally unknown. General knowledge of the world was portrayed through updated maps of the four continents, designed with precise degrees of latitude and longitude, even if there was a persistent inaccuracy concerning the western coasts of South and North America, not to mention the misleading representation of "Terra Australis" covering the bottom of the southern hemisphere. The division into four parts corresponded to the physical and human geography of the world (first part), the political geography (second part), and the religious geography (third and fourth parts). The density of description of the peoples of Europe, Asia, America, and coastal Africa is striking and makes clear how much knowledge had been accumulated over the previous hundred years on the various political systems, forms of administration, trade, economic behavior, habits, and beliefs of peoples throughout the world. Striking, too, was Botero's attention to quantitative criteria in his descriptions: he reported on the sizes of the kingdoms, the numbers of their inhabitants, cities, castles, the wealth of their rulers, and their military capacity, offering systematic demographic, economic, and political comparisons between China and Europe. The procedure is exactly the opposite of the *Historia rerum*: Botero offered updated information, including references to the past, whenever he considered it convenient for his demonstration. The program of the book was curiously close to that outlined by Piccolomini: the knowledge of the peoples of the world was considered instrumental in creating the intellectual conditions for political expansion and religious dominion. Only Botero had the possibility of developing this program. It is true that throughout the sixteenth century a huge number of travel accounts, chronicles, and correspondence (from missionaries, explorers, commercial agents, governors, and captains) had been printed or circulated in manuscript form. Several miscellanies had been organized, namely by Montalboddo (1507), Grynaeus (1532), and Ramusio (1550–59), but Botero could read the main texts directly in Portuguese or Spanish, many of them published in the second half of the sixteenth century. He also benefited from the work of his predecessors, namely Francesco Sansovino (*Del governo dei regni e delle republiche cosí antiche come moderne* [1561]), but Botero's book was better organized and included all the known world, a phenomenon that was also evident in the cartographic revolution of the Renaissance (see Chapter 7 in this volume by John A. Marino).

The impact of the European expansion on the development of the study of natural history – botany, zoology, and mineralogy – was also significant. The discovery of the New World and the travels to Asia created a new consciousness of how limited classical and earlier European understandings of the world's flora and fauna were, stimulating new research. From the thirteenth century onwards several travellers in Asia, including Marco Polo, John of Montecorvino, Jordanus of Séverac, Niccolo de' Conti, and Lodovico de Varthema, had described plants and fruits like jack, talipot, palmyra, durian, cinnamon, and coconut. In 1515, the first systematic accounts – geographic, political, economic, and ethnographic – of the territories around the Indian Ocean by the Portuguese Tomé Pires and Duarte Barbosa included lists of spices and descriptions of medicinal plants (Pires was a pharmacist). But it was only in 1563 in Goa that a real treatise on the botany of Asia was published, by Garcia d'Orta (*c.* 1501–68), a new Christian and head physician of the Estado da Índia, who

lived in that city from 1534 to 1568. The *Colóquios dos Simples e Drogas e Coisas Medicinais da Índia* consisted of 59 dialogues between the author and a colleague, Doctor Ruano, who had just arrived from Europe, his head filled with a classical knowledge that had made no room for the new discoveries. The book described for the first time some diseases like cholera, but its major focus was on Asian flora and the medicinal uses of some plants. It engaged also in the description of animals and their behavior and the main features of minerals, like diamonds. It included numerous ethnographic references, especially to the caste system. Cristóvão da Costa (*c.* 1525–94), known under the Spanish name Christobal Acosta, met Orta in India and lived in Cochin as head physician of the royal hospital until he returned to Europe in 1572. In 1578 in Burgos he published the *Tractado de las Drogas y Medicinas de las Indias Orientales*, a new text based on his own observations, a straightforward narrative that corrected and enlarged Orta's book. For the first time, the text included woodcuts representing some of the plants and fruits described in the text, based on Acosta's own drawings. These two authors described around a hundred plants, which had a major impact on a discipline that could boast only 600 plants inventoried by the classical heritage. Carolus Clusius published Latin versions of these two main texts, which guaranteed their diffusion in Europe: first editions in 1567 and 1582, reissued in a single volume in 1593, and also included (with Monardes' text) in Clusius' collected works, *Exoticorum libri decem*, in 1605.

The abundance of the completely unknown flora and fauna of the New World immediately attracted the attention of the Europeans. Although the book *De Orbe Novo*, published by Pedro Mártir de Anglería in 1511 (and successively extended until the complete edition in 1530), described some plants, fruits, and animals, the first extensive descriptions of flora and fauna were included in the *Sumario de la Natural Historia de Indias*, published by Gonzalo Fernández de Oviedo in 1526, and in the *Historia General y Natural de las Indias*, published by the same author in 1535 (the first volume). The *Sumario* is completely dedicated to the description of nature: food of the natives (corn, manioc); mammals, birds, snakes, lizards, insects, fishes, and seafood; plants, trees, and fruits (avocados, coconuts, guavas); medicinal uses of certain plants (like the guayacan to treat syphilis); minerals; and natural phenomena. The first volume of *Historia General* contains ten "books," from VI to XV, on nature. The descriptions were enlarged and new species were included (like coca, potato, cacao, cassava), including more than 200 items and illustrations for the first time. In 1565 Nicolas Monardes published a treatise on the flora of the New World, which was immediately translated into other languages. Here again Clusius had a major role republishing and illustrating the text. A great amount of information concerning medicinal uses of plants and remedies produced by the natives had been added, although many "wonders" were still included in the text.

A further major achievement was the fieldwork done from 1570 to 1577 in New Spain by Francisco Hernández, work that resulted in an enormous compilation and description of flora, fauna, and minerals. He had been sent to Mexico by Philip II, who had organized botanical gardens (coupled with zoological gardens) in Aranjuez and at the Escorial. The work was so massive that it was issued only in an abridged version in Castilian, published by Francisco Ximénez in Mexico in 1615, and in a Latin version published in Rome in 1651. But we have to acknowledge the

importance of local tradition of botanical gardens in Mexico – much before Europe, where similar initiatives were only taken during the second half of the sixteenth century – and the crucial role of local informers, like those who wrote the manuscript of 1552 with the description and illustration of numerous species of plants and their medicinal uses. In Brazil, the major accounts of the coast, produced by Pero de Magalhães Gândavo (printed in 1576), Gabriel Soares de Sousa (manuscript from 1587), and Fernão Cardim (manuscripts from 1591–1601, taken by British corsairs and published in English by Purchas) presented extensive descriptions of nature. Just to give an idea of the scope of these works, Cardim alone described nearly 200 items, including mammals, snakes, birds, fish, seafood, vegetables, and trees for food, medicine, and timber.

The study of non-European languages started quite early, with the listing of hundreds of words in the travel accounts and descriptions of new lands that circulated in Europe throughout the fifteenth and sixteenth centuries in manuscript or printed form. In many texts of Castilian and Portuguese authors concerning other continents, a large number of local words were integrated to designate new food, fauna and flora, ethnicities, social groups, systems of belief, rituals, ceremonies, powers, arms, products, forms of trade, and transport. Not surprisingly, in the sixteenth century Catalans, Castilians, and Portuguese integrated a significant number of new nouns borrowed from other languages and lent their own words to Asian and American languages. In the Portuguese case, the integration of words from Arabic origin did not occur in the Middle Ages, as we might suppose, but rather during the sixteenth century when the Portuguese had intense relations in North Africa and used Arabic as the language of communication in the Middle East, Ethiopia, East Africa, India, and Southeast Asia. The renewed interest in Greek and Latin in Europe led to the systematic study of vernacular languages, defined through grammars and dictionaries (vernacular-Latin and Latin-vernacular). The Latin paradigm behind those enterprises – declension, conjugation, doctrine of the parts of the discourse – would influence the first identification of "exotic languages" by Europeans, all of them missionaries, who defined a new strategy of communication and preaching that required knowledge of local languages.

The model of universal communication based on the Latin paradigm motivated the production of grammars and vocabularies of different languages (we only indicate here some significant publications): Nahuatl was included in a bilingual book on Christian doctrine printed in 1539 in Mexico and was the subject of a grammar published by Alonso de Molina in 1555; Quechua, in Peru, was the subject of a grammar published by Domingo de Santo Thomas in 1560 in Valladolid (including extensive vocabulary), while a trilingual (Quechua, Aymara, and Castilian) manual of Christian doctrine was published in 1584 in Lima; Tamil, in South India, was one of the first languages to be printed in vernacular characters by Europeans in 1577 (the author, Henrique Henriques, left an enormous number of manuscripts in Tamil, including dictionaries, grammars, manuals of confession, manuals of Christian doctrine, catechisms, hagiographies, and a life of Christ, while Tamil converts to Christianity like Vicente da Nazaré, Jorge Carvalho, and Tomé da Cruz printed a short manual of Christian doctrine in Tamil and Portuguese); Tupi-Guarani, the language of native Americans along most of the Brazilian coast, was the subject of a grammar written

by José de Anchieta and published in 1595, contributing to transform a regional language into "general language," a typical strategy of the Europeans in America. Japanese was also the subject of a grammar written by João Rodrigues and published in 1604, ten years after the first abridged grammars and dictionaries of Japanese, and one year after the massive dictionary of Japanese, which had resulted from 50 years of work and collaboration of Europeans and Japanese, some of them Jesuit brothers, reproduced by their printer in Nagasaki.

Yet the impact of the European expansion on the Renaissance is most evident in literature. Travel accounts, reports of major navigations, and descriptions of other continents were crucial to the creation of the intellectual conditions that led to the emergence of the utopian literary genre. Raphael Hythloday, a character created by Thomas More in 1516 to report the habits, values, and forms of government of the people living on the island Utopia, was supposedly a Portuguese navigator, learned in Greek and Latin, dedicated to the study of philosophy, with a passion for traveling. He had sailed with Amerigo Vespucci and decided not to return to Europe after his last voyage. Curious to know foreign people and strange countries, he traveled with five friends for several years in the Atlantic and Indian Ocean, arriving finally at Calicut, where he took a ship back to Lisbon. It was during his travels that Hythloday discovered the island of Utopia, the location of which was never indicated (More regretted not having asked the obvious question . . .). It was precisely the recent profusion of texts concerning the New World, Africa, and Asia, collected in 1507 by Francesco da Montalboddo in *Paesi nuovamente ritrovati* (a bestseller with successive editions in Vicenza, Venice, and Milan; immediately translated into Latin, German, Flemish, and French), which opened the possibility of imagining a utopia – an "extraordinary place" or a "no-place" – where an ideal society could be set up and used to criticize British or European societies and forms of government.

The power of this new genre was recognized by other authors, who also used the information collected in *Paesi nuovamente ritrovati*. François Rabelais, in his *Pantagruel*, published in 1532, made his hero follow the typical maritime voyage of the Portuguese to India through Porto Santo, Madeira, the Canary Islands, Senegal, Cape Verde, Gambia, the Cape of Good Hope, and Melindi, before he arrived at the port of Utopia (in honour of Thomas More). In the complete edition of the work published in 1552 Rabelais returned to the same subject and described a new voyage undertaken by Pantagruel. This imaginary itinerary reproduced the French and English search for a northwest passage to India, explored for example by Jacques Cartier in 1534 and 1535/36. In 1602 Tommaso Campanella wrote *La città del sole*, taking advantage of a century of publications on other continents. For this new utopia he used the available knowledge of the Amerindian, Iranian, Indian, Chinese, and Japanese habits and religious beliefs to imagine a somewhat frightening theocratic society based on communal property, hierarchy based on age and merit, controlled sexual reproduction, and eugenics. In his *Questiones* (fourth question), published in 1637, Campanella quoted Thomas More and asserted the importance of utopian imagination to reflect on natural law and man in a state of nature.

The literary impact of the European expansion is not measurable just by the new utopian genre. Other literary genres, like chivalric novels, were also opened to

new information on "exotic" peoples and countries. In 1516, the same year More published his *Utopia*, Ludovico Ariosto issued in Ferrara the first edition of *Orlando Furioso*. A fantastic poem inspired by the chivalric genre, its innovation lay in the supposed unity of man in his diversity, the relationship between vital experience and contemplative activity, and the references to the Oriental world that went beyond the tradition of crusades. The marvelous world built by Ariosto included precise geographic information on India, Ceylon, and Malacca, as well as explicit reference to the circumnavigation of Africa.

Travel writing created its own sphere of geographic, scientific, and ethnographic themes that inspired philosophers and politicians throughout the sixteenth century, and managed to provide a continuous line of new material for intellectual reflection through the nineteenth century (Rubiés 2002). Michel de Montaigne established the conditions for an anthropological vision of the world when he built a relativist perception of different cultures. Writing on a specific people of the New World he stated: "I do not find anything barbarian or savage in that nation . . . but each of us name barbarian what does not belong to our habits; we do not have any other criteria of truth and reason than the example and idea of the opinions and habits of our country. There is the perfect religion, the perfect police, the perfect use of all things." He contested also the designation "savage," arguing that people living in the order of nature ignored trade, letters, numbers, judges, political domination, richness or poverty, contracts, successions, dresses, agriculture, metal, wine, or cereals, but at the same time they ignored artificial life, lies, betrayal, dissimulation, meanness, envy, depreciation, or forgiveness. Montaigne considered the ritual dimension of cannibalism as an act of revenge, stating that "we judge their errors, but we are blind to our own." He attacked explicitly the European forms of justice, namely the Inquisition: "more barbarian than to eat a man dead is to eat a man alive, to torment a body full of feeling, to roast it or leave it to be bitten and torn apart by dogs and pigs (as we have read and seen recently, not among our old enemies, but among neighbors and fellow citizens, and what is worse, under pretext of piety and religion)." Montaigne evaluated the pride, dignity, and military resistance of the Aztec and the Inca "empires," underlining the magnificence of their cities, gardens, arts, and industries. He pointed out the sacrifice and integrity of local Asian princes facing Portuguese conquest and admired Chinese superiority concerning sciences, arts, and police. He also praised the stoic example of the dying Moroccan king who won the battle against King Sebastian of Portugal, commanding his troops all day until the final victory and his last breath.

Montaigne was not alone in his cultural relativism and criticism of the European expansion. Bartolomé de las Casas (1484–1566) represented a much more radical approach, because he was at the center of the Spanish expansion and vigorously condemned the process of conquest, supporting the Indians' rights to their own cultural system, political system, control of territories, and ownership of land. He openly asserted that Cortés and Pizarro should have been persecuted as criminals. From 1515 on he consistently presented his opinions to the king and the royal court, forcing open debates, in a constant balance between his political engagement – which included theoretical and historical writings – and his practice on the field, namely as a Dominican preacher and bishop of Chiapas (nominated in 1544). Although Las

Casas' opinions were systematically debunked, he managed to influence Francisco de Vitoria and the Salamanca school – Domingo de Soto, Luís de Molina, and Francisco Suárez – who reflected on the natives' rights and the notion of just war, two crucial issues for the development of Ius Gentium, a new domain of juridical theory between natural law and human law, concerning the whole world as a commonwealth.

The debate on international law was a further consequence of European expansion. Spaniards and Portuguese claimed that the oceans should be reserved for their exclusive navigation, according to the papal division of the world between the two kingdoms in 1493, redefined by the Treaty of Tordesillas one year later. The constant protest of the French kings against this shared monopoly influenced a first wave of juridical opinions on the freedom of navigation, which can be seen in the Latin and French translations of Girolamo Benzoni's *La Historia del Mondo Nuovo* (first published in 1565). The issue was again tackled at the beginning of the seventeenth century, when the shareholders of the Dutch Vereenigde Oost-Indische Compagnie wanted to know if the capture of and resulting booty from Portuguese ships in Asia could be legally accepted. Contrary to the Portuguese vision, the young Hugo Grotius argued in favor of the notion of *mare liberum* and the legitimacy of defensive and offensive action to reinforce the principle of free navigation.

The consequences of the European expansion in establishing a comparative field for political theory were extremely important. Damião de Góis, a Portuguese humanist who was a friend of Erasmus and who participated in the intellectual circles of Pietro Bembo and Johannes Magnus, wrote the first accurate account by a European on Ethiopia in 1532 (*Legatio magni Indorum Imperatoris Presbyteri Ioannis*) and a text developed in 1540 (*Fides, religio, Moresque Æthiopum sub imperio Preciosi Ioannis*), printed with a protest against the oppression of the Lapps. Although Góis always supported Portuguese conquests and intercontinental trade, even engaging in debate on the subject with Paolo Giovio, he decided to reproduce all the correspondence between the Ethiopian rulers and the Portuguese kings (and the popes), since the first direct contacts. The second embassy sent by the Negus in 1526 was an ambiguous one, with a native ambassador, the Coptic bishop Saga za-Ab, and a second ambassador, the Catholic priest Francisco Álvares, who had been in Ethiopia with the Portuguese diplomats (Aubin 1996). The Coptic bishop was immediately marginalized as a heretic by the Portuguese, who finally sent Francisco Álvares to Rome in 1533 as the legitimate ambassador to the pope. In the *Fides* Damião de Góis decided to include a long text by Saga za-Ab, where the bishop specified all the differences between the Catholic Church and the Coptic Church concerning doctrine and rituals (perhaps the reason for having the book in the Portuguese Index the following year). In the same year of 1540, Francisco Álvares finally published his book on Ethiopia in Portuguese. Although providing precious and accurate information on the political system, cultural habits, and daily life of the Ethiopians, Álvares did not include a detailed account of the Coptic religion, trying to blur the differences and contributing to the diplomatic fiction of Ethiopian obedience to the Roman Church. Góis consciously proposed a vision that emphasized religious differences and gave voice to the Coptic bishop who had been excluded by the Portuguese political and religious elite. The crucial point, however, is that Góis

wrote and published a pamphlet in the same book on behalf of the Lapps, supposedly oppressed by the noblemen and prelates in Scandinavia, who did not want to convert them because they (the noblemen) wished to maintain an unfair tax system. We know that this was not an inconsequential issue for Damião de Góis: he exchanged an insistent correspondence with Erasmus asking him to intervene on this political matter. It is a seminal case in European thought, in which external colonialism was implicitly related to internal colonialism.

The text by Francisco Álvares on Ethiopia was a major success in Europe and helped Jean Bodin to study sovereignty in a comparative way. In his *Six Books on the Republic*, Bodin corrected Paolo Giovio on the supposed division of Ethiopia into five kingdoms (in reality provinces), evaluated the relations between the Negus and the governors of provinces, and reflected on the absence of fortresses, which showed the possibility for a king to exercise his power over vast regions and peoples without depending on castles or fortified cities, always sources of revolt and sedition. But one has to acknowledge that these examples were quite scarce: Bodin built up his book almost totally inspired by the examples of the past – Greek and Roman times. It was Giovanni Botero who developed the comparative analyses of political systems, introducing old and new examples from different parts of the world – even if Botero, from a theoretical point of view, was not at all as innovative as Bodin, who reflected deeply on the relationship between law and sovereignty, creating the basis for the notion of the legal state. In the book *Della Ragion di Stato*, published in Venice in 1589, Botero reflected on contemporary empires when he addressed the main questions: How to establish, maintain, and enlarge a firm dominion on populations? Is the longevity of states favored by united or by fragmented territories? He pointed out the risks of a huge, integrated state, which could stimulate an aggressive coalition of its neighbors and would have great difficulty controlling the spread of seditions, the corruption of its parts, or collapse in front of a successful invasion: Botero gave the example of the fall in 30 months of the Visigoth monarchy in Spain before the Arabs and the erosion in a few years of the Byzantine Empire before the Turks. In contrast he praised the possibilities of a fragmented empire (he gave the example of the Portuguese), which could isolate the corrupted, seditious, or invaded parts, mobilizing forces from one part to the other according to the real political and military needs. But what Botero managed to establish with his volume was a completely new comparative framework of political thought, which defined the pattern for the next centuries, a breakthrough that has not been sufficiently acknowledged.

In all these fields – military architecture, urban planning, arts of civility, literature, linguistics, geography, natural history, and political thought – the impact of the European expansion on the Renaissance was extremely important. If we had to indicate a work representative of the major shifts in the order of knowledge, we would privilege the *Itinerario*, written by Jan Huygen van Linschoten and printed in Amsterdam in 1596 (followed by successive editions in English, Latin, German, and French). It included precise information on the Indian Ocean's geography, ethnography, botany, mineralogy, economy, politics, and linguistics, establishing an extraordinary relation between text, maps, and images (of nature and people). It is a new image of the world, written by a Catholic (former secretary of the archbishop

of Goa) who became a Calvinist when he returned to the Netherlands, deciding to reveal the secrets of the maritime routes to Asia and within Asia held by the Portuguese. But it is impossible to see in only one book all the major changes introduced by the European expansion. It was the growing autonomy of the different fields of knowledge, from botany to political theory, that revealed the dependence of the Renaissance on the European experience in other continents.

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